

ABSTRACT

The surface-treated steel sheet has a zinc-based plated steel sheet, a surface-treatment coating being formed on the surface of the zinc-based steel sheet by applying and drying a surface treatment coating composition thereon, and a top coating being formed by applying and drying a coating composition for top coating on the surface-treatment coating. The surface treatment coating composition contains a water-epoxy resin dispersion, a silane coupling agent, and phosphoric acid and/or a hexafluorometal acid. The coating composition for top coating contains a high molecular weight epoxy group-containing resin having number average molecular weights ranging from 6000 to 20000.